

# Geographic Information Systems (GIS) Research

## Open Baltimore

Presentation for the MLDS Center Research Series

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Urban Educational Leadership Program

April 7, 2022

# Agenda

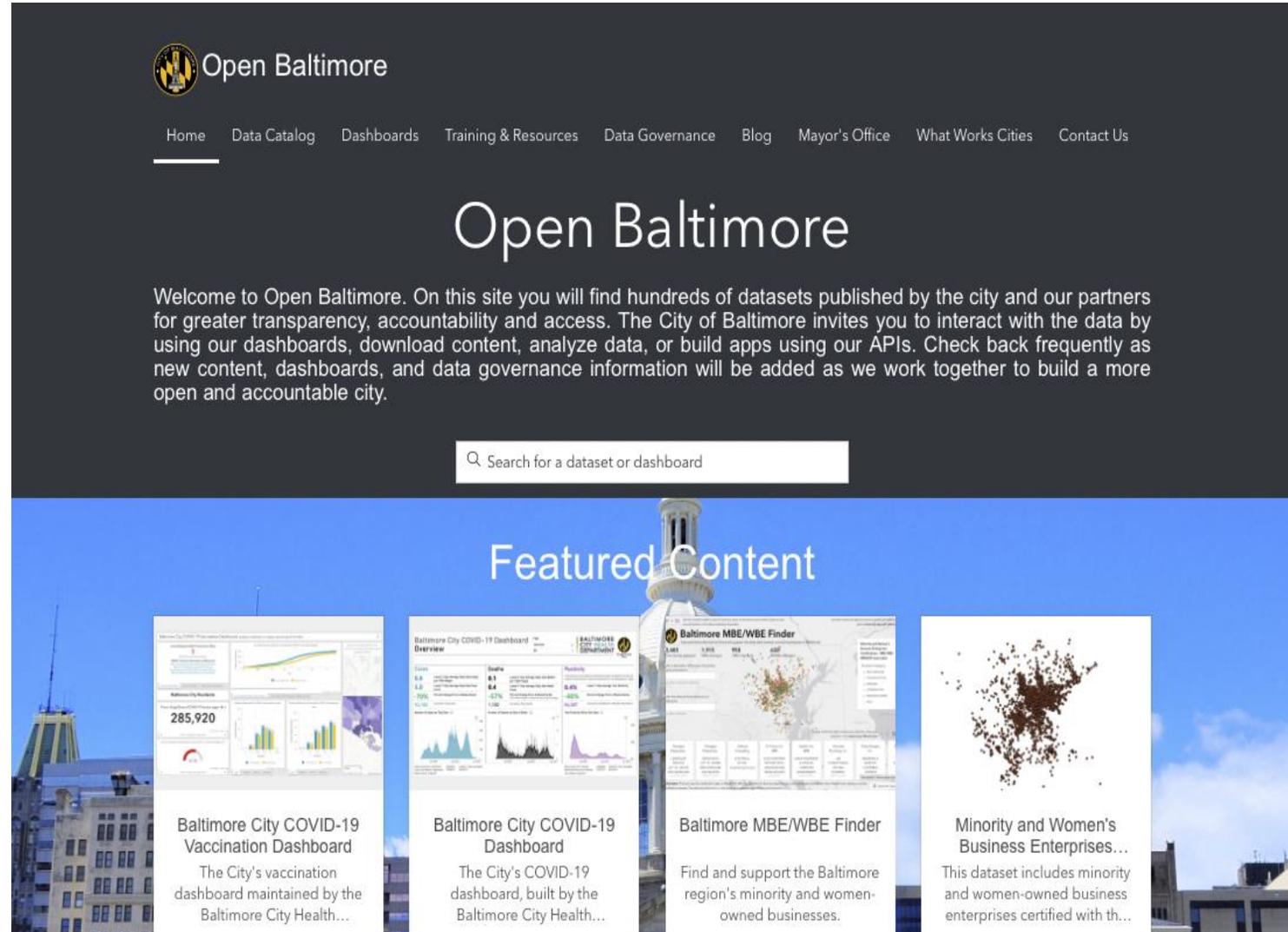
- Purpose of Presentation
- Description of Open Baltimore
- ArcGIS and Creating an Account
- Data Categories
- Featured Content
- Pre-populated Data Dashboards and Pre-populated Geo-coded Maps
- Create a Map
- Applications to MLDS Data

# Presentation Purpose

*The purpose of this presentation is to show you how to conduct geographic information system (GIS) research using Open Baltimore. GIS allows researchers to see data by geographic location. Open Baltimore is a repository of datasets published by the city to enhance transparency. More specifically, I will briefly show you how to build GIS maps and how to interpret those GIS maps using a Baltimore City education dataset that is included in the system.*

# Description

- Repository with approximately 671 datasets
- Published by Baltimore City and some of its partners to increase **transparency, accountability, and access**
- You can download content, analyze data, or build apps
- <https://data.baltimorecity.gov/>



The screenshot shows the Open Baltimore website interface. At the top left is the Baltimore City logo and the text "Open Baltimore". A navigation menu includes links for Home, Data Catalog, Dashboards, Training & Resources, Data Governance, Blog, Mayor's Office, What Works Cities, and Contact Us. The main heading "Open Baltimore" is prominently displayed. Below it is a welcome message: "Welcome to Open Baltimore. On this site you will find hundreds of datasets published by the city and our partners for greater transparency, accountability and access. The City of Baltimore invites you to interact with the data by using our dashboards, download content, analyze data, or build apps using our APIs. Check back frequently as new content, dashboards, and data governance information will be added as we work together to build a more open and accountable city." A search bar with the placeholder text "Search for a dataset or dashboard" is located below the welcome message. The "Featured Content" section is highlighted with a blue background and features four dashboard thumbnails. The first is the "Baltimore City COVID-19 Vaccination Dashboard" showing a total of 285,920. The second is the "Baltimore City COVID-19 Dashboard" with various charts and metrics. The third is the "Baltimore MBE/WBE Finder" which includes a map of the city. The fourth is "Minority and Women's Business Enterprises..." with a map showing business locations.

# ArcGIS and Creating an Account

Open Baltimore wants to access your ArcGIS Online account information ?

Sign in to Baltimore City with 

ArcGIS login

Username

Password

Keep me signed in

[Forgot username?](#) or [Forgot password?](#)

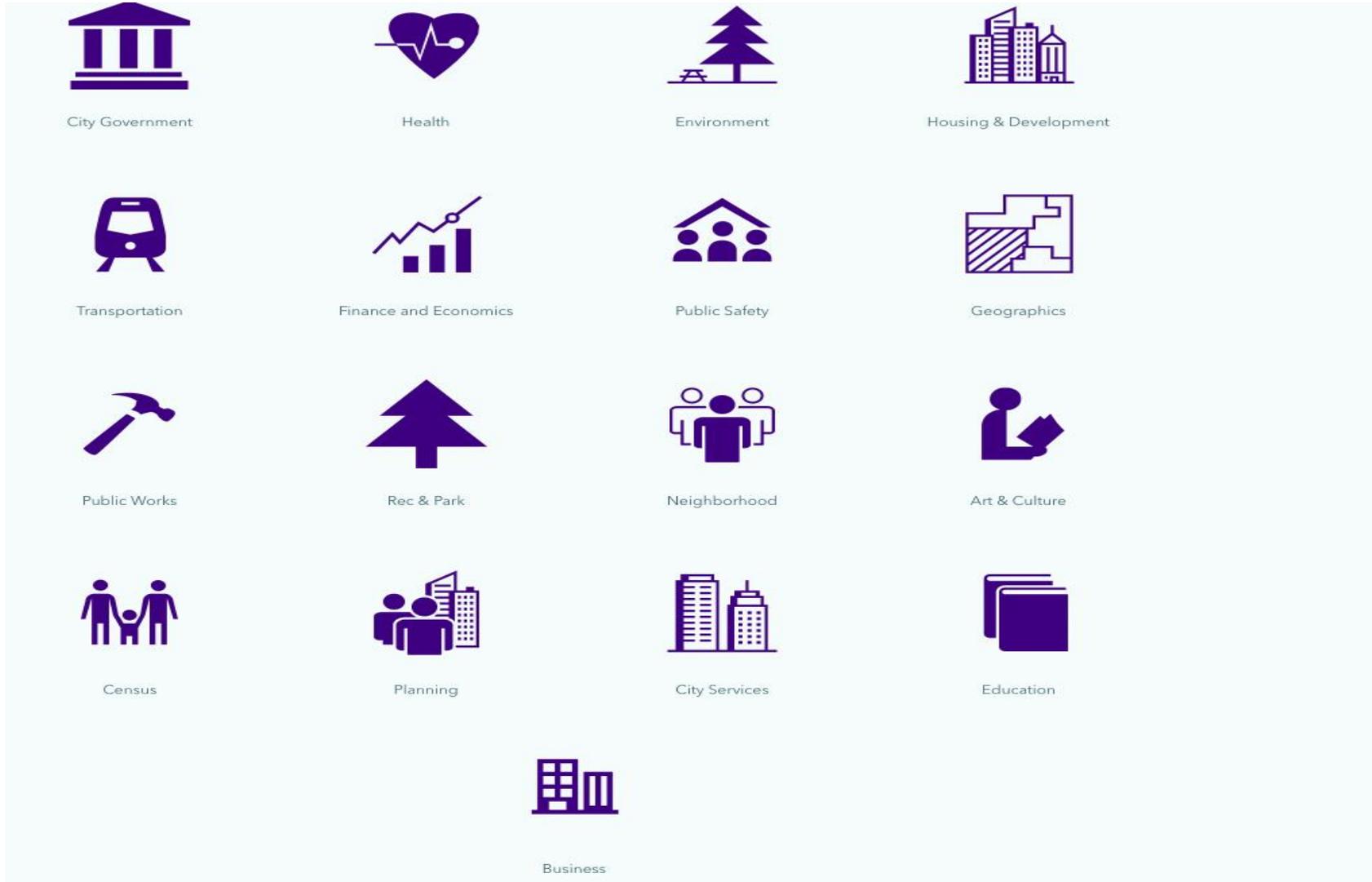
No account? [Create a Baltimore City Community account.](#)

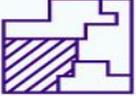
Not a member of this organization?  
[Sign in to your account on ArcGIS Online](#)

[Privacy](#)

- ArcGIS is geospatial software
- Option to create an account
  - View, edit, manage, and analyze geographic data
- Save data
- Import data files to integrate with GIS technology

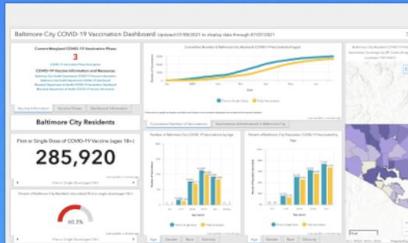
# Data Categories



 City Government	 Health	 Environment	 Housing & Development
 Transportation	 Finance and Economics	 Public Safety	 Geographics
 Public Works	 Rec & Park	 Neighborhood	 Art & Culture
 Census	 Planning	 City Services	 Education
	 Business		

# Featured Content

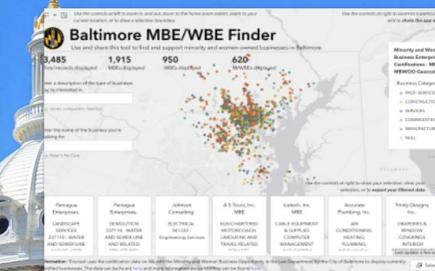
## Featured Content



**Baltimore City COVID-19 Vaccination Dashboard**  
The City's vaccination dashboard maintained by the Baltimore City Health...



**Baltimore City COVID-19 Dashboard**  
The City's COVID-19 dashboard, built by the Baltimore City Health...



**Baltimore MBE/WBE Finder**  
Find and support the Baltimore region's minority and women-owned businesses.



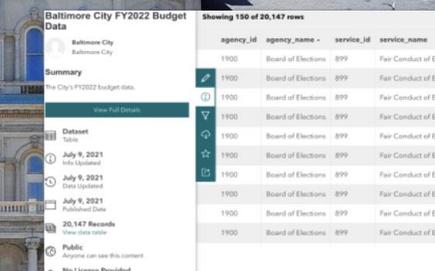
**Minority and Women's Business Enterprises...**  
This dataset includes minority and women-owned business enterprises certified with th...



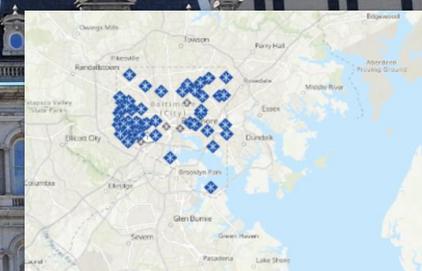
**Open Checkbook**  
Explore the City's spending, one transaction at a time.



**Open Budget**  
The City's budget in interactive form, created by the Bureau of Budget and Management...



**Baltimore City FY2022 Budget Data**  
The City's FY2022 budget data.



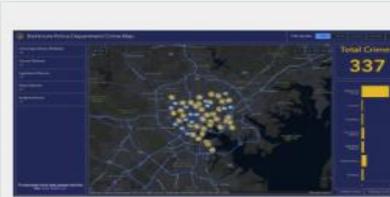
**311 Snow/Icy Conditions in Baltimore City January 2022**

# More Data Insights



Cityview

Explore



Baltimore Police Department  
Crime Map Dashboard

Explore



Baltimore City Grocery Stores  
Dashboard

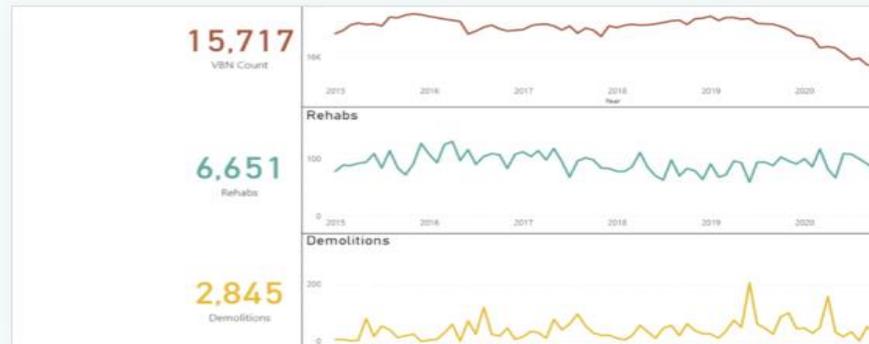
Explore



Rec and Leisure

This webmap displays the location of recreation and park related facilities and ameniti...

Explore



Vacant Building Dashboard

Explore

# Pre-populated Data Dashboards

Baltimore City COVID-19 Vaccination Dashboard Updated 12/3/2021 to display data through 12/2/2021

March 24, 2022 - The Baltimore City Health Department is working to validate a new COVID-19 vaccination data stream from MDH for the purposes of updating the Baltimore City COVID-19 vaccination dashboard and coverage ma

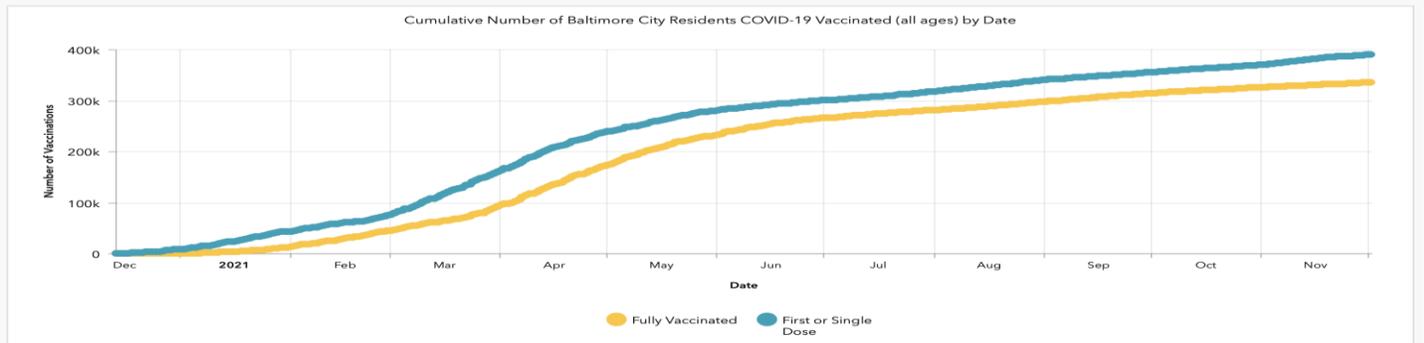
### Current Maryland COVID-19 Vaccination Phase

**3**

COVID-19 Vaccination Phase Description

#### COVID-19 Vaccine Information and Resources

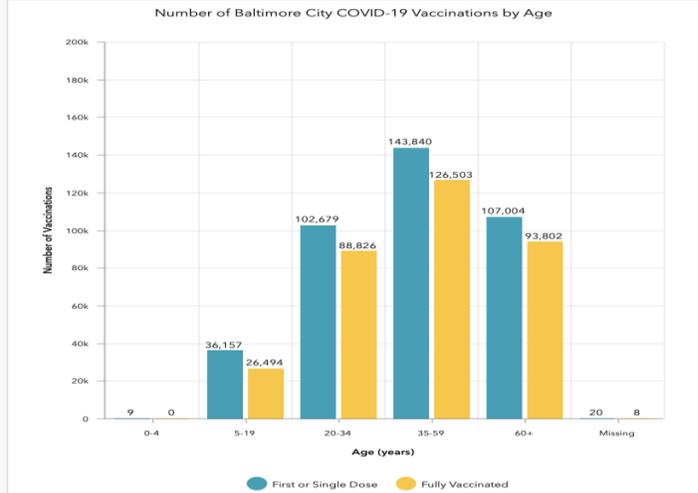
- Baltimore City Health Department COVID-19 Vaccine Information
- Baltimore City Health Department COVID-19 Dashboard
- Maryland Department of Health COVID-19 Vaccination Dashboard
- Maryland Department of Health COVID-19 Vaccine Information



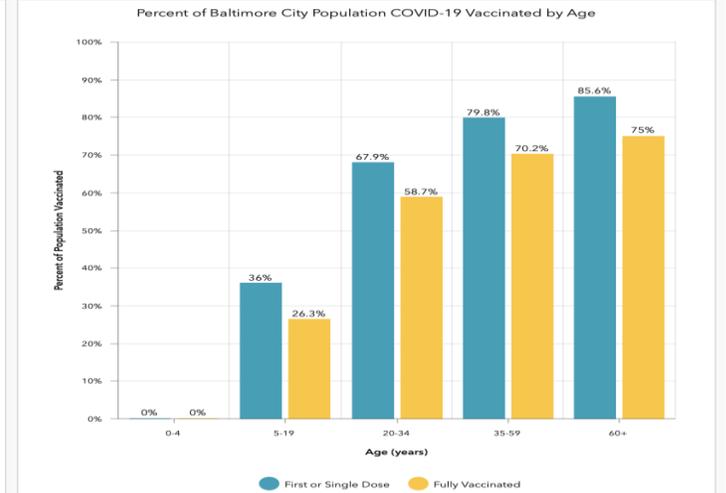
Click points on graph to display cumulative vaccination count (numbers displayed are rounded to the nearest hundred)

Last update: a few seconds ago

Cumulative Number of Vaccinations by Date



Last update: a few seconds ago



Last update: a few seconds ago

- Vaccine Information
- Vaccine Phases
- Dashboard Information

### Baltimore City Residents

### First or Single Dose of COVID-19 Vaccine (ages 18+)

**361,373**

Last update: a few seconds ago

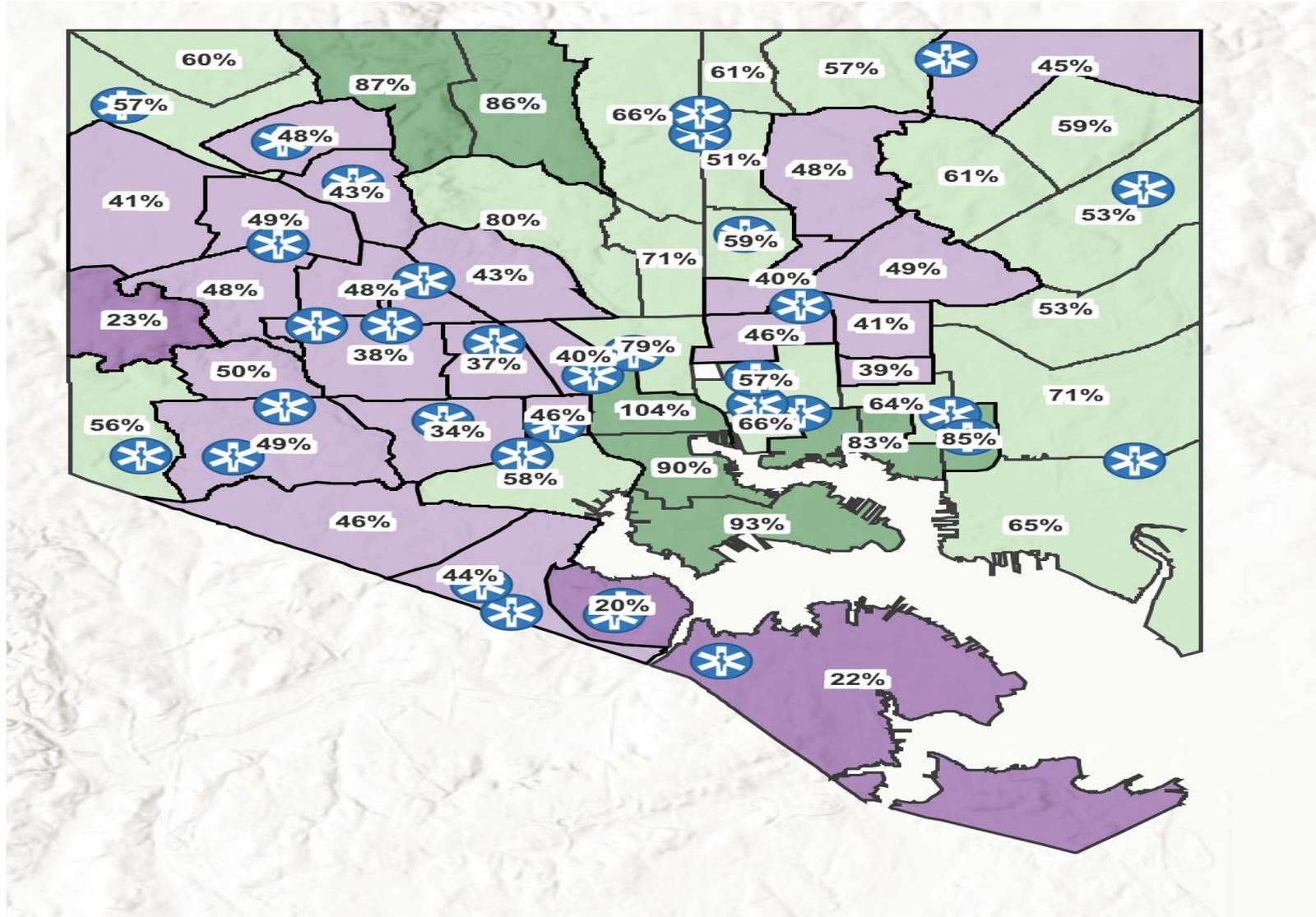
First or Single Dose (ages 18+)

### Percent of Baltimore City Residents Vaccinated (first or single dose) (ages 18+)



Last update: a few seconds ago

# Pre-populated Geo-coded Map



**Legend** ⏶ ✕

- Upcoming Baltimore City COVID-19 Vaccination Clinics - Week of April 4th- Clinics Offering Vaccine for Ages 5 to 11


- Upcoming Baltimore City COVID-19 Vaccination Clinics - Week of April 4th


- Community Statistical Area 30% and Below Vaccination Coverage -1st or Single Dose


- Community Statistical Area 31% to 50% Vaccination Coverage-1st or Single Dose


- Community Statistical Area 51% to 80% Vaccination Coverage-1st or Single Dose


- Community Statistical Area 81% and Above Vaccination Coverage-1st or Single Dose


- COVID-19 Vaccination Clinics from Maryland Department of Health



# Build Your Own - Education Datasets



All
Data
Apps & Maps
Documents

**Filters** Reset

---

**Content Type** ^

Apply type

- Feature Layer
- Feature Service
- PDF
- Web Map
- Table

[More](#) v

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**Source** ^

- Baltimore Neighborhood Indicators Alliance
- Baltimore City
- esri\_en
- Esri

---

**Tags** ^

education x

- 2016
- 2017
- 2019
- 2015
- 2014

[More](#) v

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**Last Updated** v

1 - 20 of 78 results Relevance v

**Data**

**Percentage of Students Passing H.S.A. Government**  
Baltimore Neighborhood Indicators Alliance | jacobfrance

The percentage of high school students who have successfully passed the H.S.A. exams out of all high school students that took the exam in the school year (considering only the highest...

---

**Type:** Feature Layer **Rows:** 55  
**Last Updated:** April 1, 2020 **Tags:** education, 2010, 2011, 2013, 2014

**Data**

**Percentage of 3rd Grade Students Passing MSA Math**  
Baltimore Neighborhood Indicators Alliance | jacobfrance

The percentage of students passing M.S.A. exams in reading and mathematics in 3rd, 5th, and 8th grades. Maryland School Assessment (MSA) scores measure the number of students scori...

---

**Type:** Feature Layer **Rows:** 55  
**Last Updated:** April 1, 2020 **Tags:** education, 2010, 2011, 2012, 2013

**Data**

**Percentage of Students Passing H.S.A. Biology**  
Baltimore Neighborhood Indicators Alliance | jacobfrance

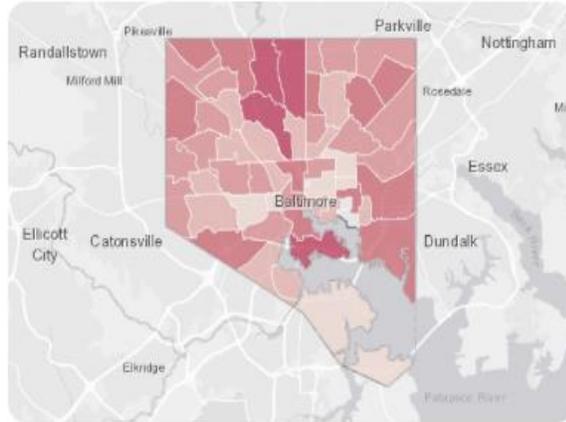
The percentage of high school students who have successfully passed the H.S.A. exams out of all high school students that took the exam in the school year (considering only the highest...

---

**Type:** Feature Layer **Rows:** 55  
**Last Updated:** April 1, 2020 **Tags:** education, 2010, 2011, 2012, 2013

# Create a Map

\*Website error



## High School Completion Rate - Community Statistical Area



Baltimore Neighborhood Indicators Alliance  
Baltimore Neighborhood Indicators Alliance

View Map

Download

More ▾

### Summary

The percentage of 12th graders in a school year that successfully completed high school out of all 12th graders within an area.

The percentage of 12th graders in a school year that successfully completed high school out of all 12th graders within an area. Completers are identified as completing their program of study at the high school level and satisfying the graduation requirements for a Maryland High School Diploma or the requirements for a Maryland Certificate of Program Completion. Source: Baltimore City Public School System Years Available: 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2018-2019, 2019-2020



Looking for something else? See other datasets nearby



### Details

-  **Dataset**  
Feature Layer
-  **January 4, 2021**  
Info Updated
-  **May 25, 2021**  
Data Updated
-  **March 24, 2020**  
Published Date
-  **55 Records**  
View data table
-  **Public**  
Anyone can see this content
-  **No License Provided**  
Request permission to use

### I want to...



#### Create a Map

Start a map with this data



#### Start Simple

Basic styling, drawing, and analysis

#### Advanced Mapping

Open in ArcGIS MapViewer



#### Create a Story

Open in ArcGIS StoryMaps



#### View API Resources

Try out the API Explorer



#### View Data Source

Select to open in a new tab



#### View All Metadata

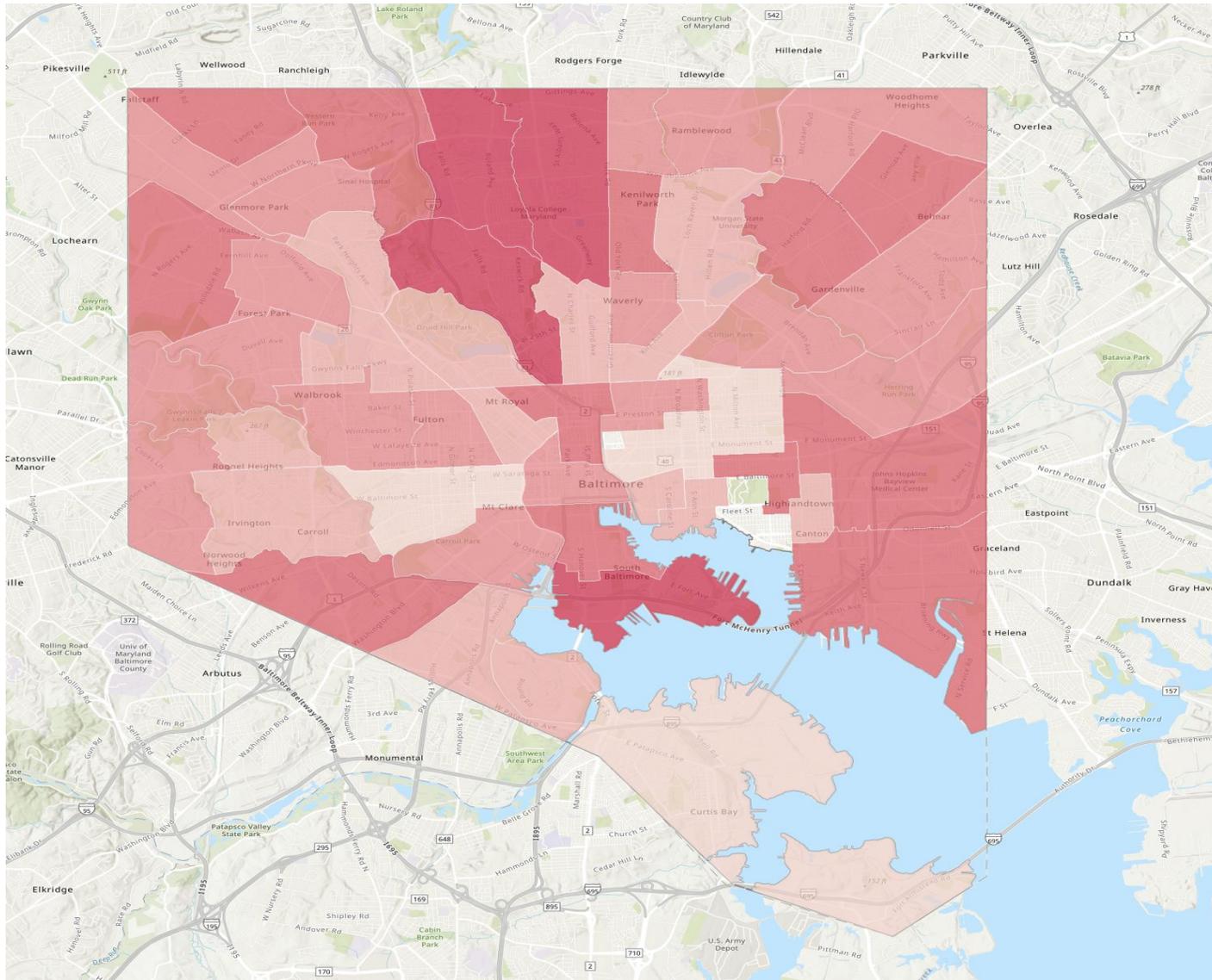
Select to open in a new tab



#### Open in ArcGIS Online

Select to open in a new tab

# Create a Map



Legend ×

**High School Completion Rate**

**High School Completion Rate - Community Statistical Area**

2019-2020

- 88.1% - 100.0%
- 81.9% - 88.0%
- 76.6% - 81.8%
- 70.9% - 76.5%
- 66.7% - 70.8%

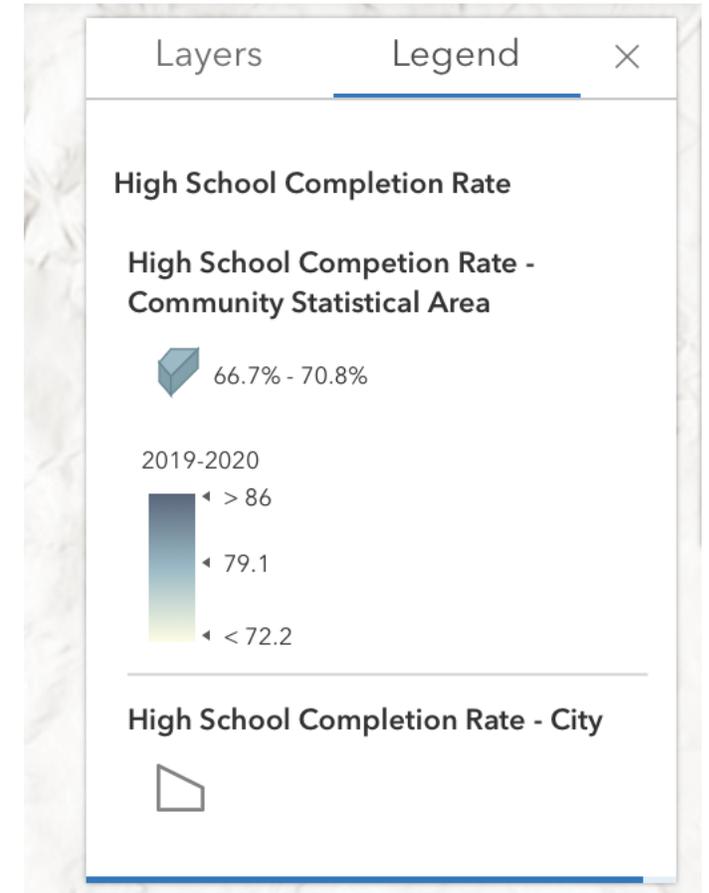
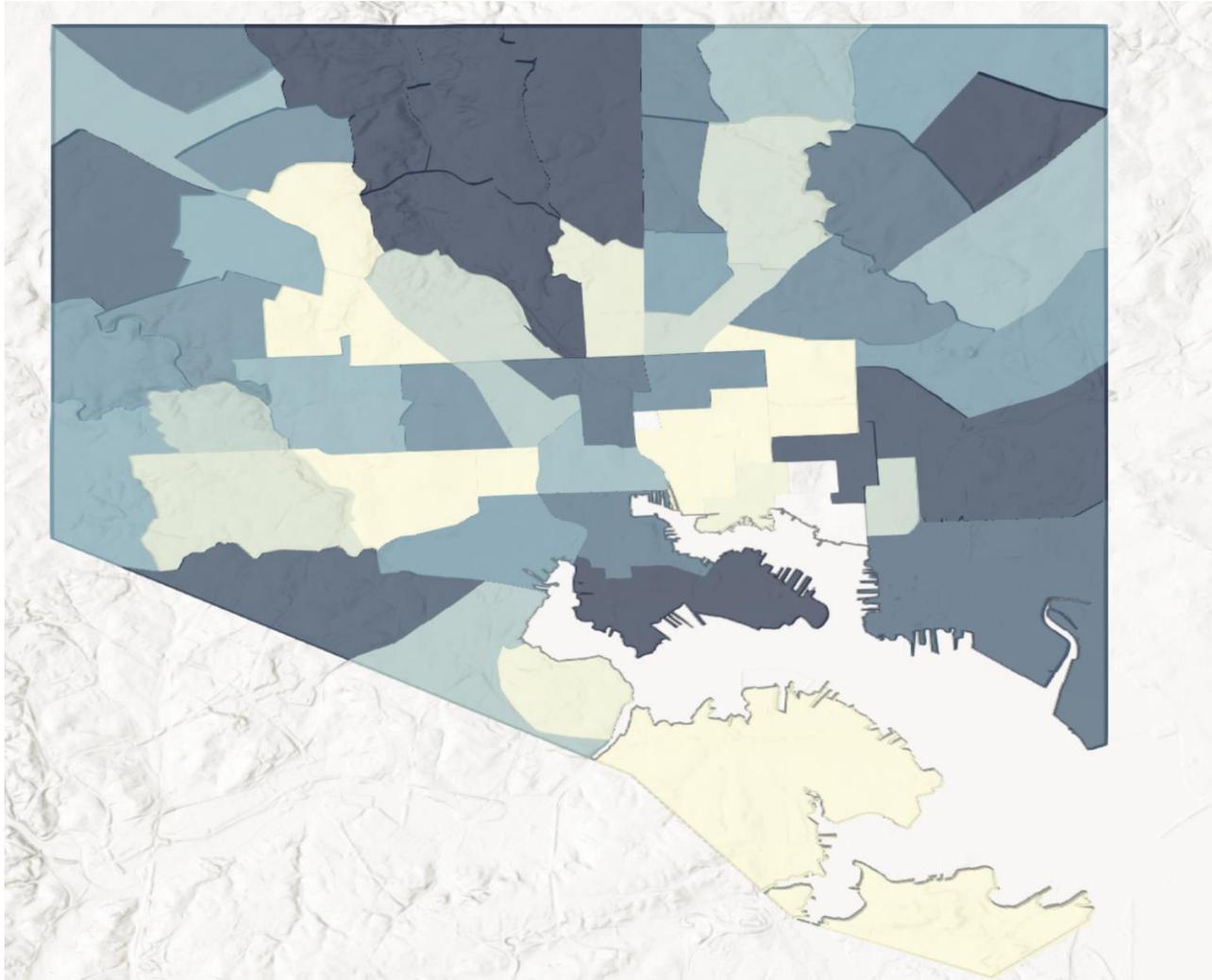
- Can help researchers identify and target areas of opportunity for research

# Corresponding Tables

**High School Completion Rate - Community Statistical Area (Features: 55, Selected: 0)** □

Community Stat...	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2018-2019
Allendale/Irvington/Hilton	80.34934	83.94	78.13953	82.68156	86.294416	77.647059	75.510204	75.141243	75.838926
Beechfield/Ten Hills/West Hills	85.86957	80.34	82.05128	89.2562	89.423077	86.792453	86.111111	68	78
Belair-Edison	82.85714	79.91	77.39464	82.18623	81.568627	80	84.234234	79.5	82.608695
Brooklyn/Curtis Bay/Hawkins Point	78.46154	75.38	70.5036	74.78261	78	69.411765	74.747475	78.448276	72.448979
Canton	75	66.67	100	80	80	75	80	50	33.333333
Cedonia/Frankford	82.11921	82.29	83.86076	81.84818	84.453782	85.770751	83.534137	79.497908	76.446280
Cherry Hill	76.40449	85.29	84.44444	77.31092	78.846154	66.990291	71.276596	77.419355	75.280898
Chinquapin Park/Belvedere	76.38889	84.09	82.43243	86.58537	80.882353	87.037037	81.967213	77.464789	81.632653
Claremont/Armistead	80.32787	81.48	78.37838	76.82927	81.15942	77.52809	80	75.454545	75.757575
Clifton-Berea	77.69784	80.75	81.29496	71.31783	65.09434	63.809524	76.530612	75.490196	68.965517
Cross-Country/Cheswolde	76.92308	80	75.75758	78.26087	87.878788	95	88.235294	82.352941	87.5
Dickeyville/Franklin	78.57143	80	84.84848	77.77778	65.217391	78.947368	85	88.888889	73.684210
Dorchester/Ashburn	80.74534	79.29	81.81818	85.31469	85.384615	79.6875	82.5	74.766355	79.464285
Downtown/Seton Hill	82.35294	90.91	93.33333	85.71429	91.304348	90	63.636364	93.75	85.714285
Edmondson Village	77.6699	76.98	83.60656	78.57143	79.2	78.070175	72.727273	77.894737	83.333333
Fells Point	72.22222	92.31	53.84615	62.5	83.333333	72.727273	83.333333	86.666667	53.846153
Forest Park/Walbrook	74.07407	76.42	80.17241	78.89908	82.352941	75.280899	80.645161	79.816514	83.653846

# Change a Map



# Applications to MLDS Data

- Potential to use ArcGIS to map student movement from Maryland public high schools into postsecondary and the workforce; (e.g. could map *advanced course taking* and how it relates to college enrollments)
- Potential to link external data from Open Baltimore to MLDS data at the school level to provide contextual information for cross-sector research

# Closing

- Create GIS stories
- Engage in training
- Participate in community and forums around GIS data
- Review and contribute to the ArcGIS Blog
- Generate research ideas (Baltimore City Grocery Stores)

**Thank you to the MLDS Center for this opportunity.**

**Thank you to my Morgan State University colleagues.**

**Thanks to all of you!**

## Questions

Rhonda Erica Baylor, Ph.D.

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